Contribution Report

Project Title: Intelligent Vehicle Management System

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1. License Plate Detection and Recognition

- **Tasks:**
    - Implemented YOLOv8 for license plate detection.
    - Integrated EasyOCR for text extraction from license plates.
    - Fine-tuned YOLOv8 model parameters for improved accuracy.
- **Code Contributions:**
    - Developed YOLOv8 training scripts on custom datasets.
    - Integrated EasyOCR library for OCR functionality.
    - Implemented preprocessing techniques to enhance recognition performance.

2. Parking Lot Detection

- **Tasks:**
    - Utilized YOLOv8 for vehicle detection within parking lots.
    - Developed algorithms for real-time vehicle counting and monitoring.
    - Optimized YOLOv8 configurations for varied environmental conditions.
- **Code Contributions:**
    - Implemented detection and monitoring algorithms using YOLOv8.
    - Fine-tuned model settings to ensure reliable performance in different lighting and weather scenarios.

3. Challenges Faced and Overcome

- **Real-time Performance:**
    - Implemented model optimizations and preprocessing steps to achieve real-time inference on edge devices.
- **Robust Recognition in Diverse Conditions:**
    - Applied data augmentation techniques and parameter tuning to enhance license plate recognition accuracy.

4. Collaboration with Team Members

- **Team Collaboration:**
    - Worked closely with infrastructure and backend teams to integrate detection modules seamlessly.
    - Collaborated with frontend developers to ensure effective display and usability of detection results in the user interface.